

Alice Kober, Michael Ventris, and the decipherment of Linear B

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Almost as soon as he began excavating in 1900 at Knossos, which he identified as the fabled capital of Minoan Crete and palace of the legendary King Minos, archaeologist Arthur Evans unearthed clay tablets written in not one but three unknown scripts. Two of them - which he called 'Cretan Hieroglyphic' and 'Linear A' - remain undeciphered to this day. The third, 'Linear B', became the subject of a code-breaking exercise that would re-write the history of the Greek language.

Initial insights

Certain features of Linear B were immediately obvious: it contained a series of signs, 'ideograms' or 'logograms', representing things in the real world - some easily-identifiable, pictographic representations of MAN, WOMAN, HORSE, and DAGGER for example, others more abstract and, therefore, harder to interpret, including those we now know represent metals such as BRONZE

or GOLD. It had a decimal-based system of numerals, where a vertical line represents 1, two vertical lines 2, a horizontal line 10, a circle 100, and so on. And, with around 90 signs used to spell out words, it was likely that it constituted a 'syllabary', a system in which each sign represents not a single sound, as in an alphabet, but a sequence of sounds, and, in a syllabary of this size, that each sign represented either a simple vowel or a consonant followed by a vowel. It was also clear from the layout of script on the tablets that the majority, at least, were lists of commodities.

One important thing remained unknown: the language that the script was used to write. There were many theories, of course, ranging from something related to Hittite; or 'Pelasgian', the language, according to the ancient Greeks themselves, of the original inhabitants of Greece; or even Etruscan, an ancient and largely undeciphered language of Italy with no known relatives, but whose speakers, according to tradition, had migrated from the eastern Mediterranean. Nobody was expecting the language to be Greek.

Early research on the tablets produced one or two insightful results. In 1927 a scholar named A. E. Cowley had noticed, for example, that the WOMAN ideogram was sometimes followed by two words starting with the same sign and accompanied by numerals, which he suggested might mean 'boys' and 'girls' or $\kappa\omicron\upsilon\tau\omicron\upsilon\omicron\iota$

(*kouroi*) and κούραι (*kourai*) in ancient Greek – a guess we now know to be correct. He also noticed that eight of the signs of Linear B were similar in shape to those of the ‘Cypriot syllabic script’ (a script used to write the ancient Greek dialect of Cyprus between the 11th and 4th centuries B.C.) which had been deciphered in 1871 with the aid of inscriptions that used the Greek alphabet as well as the syllabic script to write the same text. A tablet containing the HORSE ideogram also contained a word which, if the Cypriot values were valid for Linear B, would read *po-lo*, tantalizingly close to the Greek word πῶλος (*pōlos*) ‘foal’. Again, though rejected by Evans as mere coincidence, likely to be seized upon by misguided fools who believed that the Minoans spoke Greek, it would turn out to be correct.

	Vowel 1	Vowel 2
Consonant 1		
Consonant 2		
Consonant 3		
Consonant 4		
Consonant 5		

She could not tell from this what the values of each consonant and vowel were, of course; and in one respect she was mistaken. We now know that in each type, ‘Case 3’ is a place name, and ‘Case 1’ and ‘Case 2’ are the feminine and masculine adjectives describing people from that place. That, however, is unimportant. The discovery that the language was inflecting and the insight that this would enable the identification of signs with common consonants and vowels laid the foundation for the work of the final decipherment. It was work she would not get to undertake herself: Alice Kober died, probably of cancer, on 16 May 1950, at the age of 43. It would fall to Michael Ventris, an English amateur, to take the final steps. Kober’s role in the story of Linear B cannot be overestimated, however. John Chadwick, the Cambridge academic who eventually collaborated with Ventris, wrote of her,

I do not think there can be any doubt that Miss Kober would have taken a leading part in events of later years, had she been spared; she alone of the earlier investigators was pursuing the track which led Ventris ultimately to the solution of the problem.

The big reveal

Ventris had been working on Linear B in his spare time ever since hearing a lecture by Evans as a schoolboy. In a ‘Work Note’ dated 28 January 1951 circulated to the scholarly community at his own expense, Ventris refers to the importance of identifying which signs share the same consonants, observing that ‘possible equations can be plotted in the form of a “syllabic grid”’ – an expanded form of Kober’s ‘tentative phonetic pattern’. He goes on to predict that ‘when at least half the signs of the syllabary have been securely fixed on the grid, it will only need a small number of inspired pieces of linguistic deduction to solve the whole “simultaneous equation”’. Ventris set about the task of arranging the grid. He established that the language distinguished gender in personal names; he identified three cases in six patterns of declension in men’s names; and by using the evidence of the numerals he identified singular and plural inflections.

By February 1952 his grid was in a state where he was able to begin making ‘inspired pieces of linguistic deduction’. Many women’s names, titles and descriptions, he noticed, ended in - or - and since Etruscan (his guess at the language), Lycian, and Greek had feminine names in -*ia* he guessed that the vowel of was *-i* and that was *ja*. That put tentative values on the vowel of one column and the consonant of one row. Conversely many men’s names and titles ended in - and - which, if the ending were like Greek -*ευς* (another guess), made equal *u* (giving an extra column), and , , and share a vowel which might be *e*. If and its column were *a*, that left the remaining column to be *u*, and the vowels were potentially solved.

With the vowels in place, Ventris returned to Kober’s sets of words. He knew that her ‘Case 3’ actually represented place names. Ignoring the consonants, which are still represented by row numbers, he had *12u-6i-14o*, *9a-i-14o*, *14u-2i-13o*, *6o-8o-13o* and *a-7i-8i-13o*. Then he guessed: what if row 6 were *k*? That gave a place name *ko-?o-?o*, perhaps *ko-no-so*, Knossos; and following the guesses for 8 = *n* and 13 = *s*, *a-mi-ni-so* = Amnissos, the port of Knossos, *tu-ri-so* = Tyliisos (Linear B uses the same signs for *r* and *l*), *pa-i-to* = Phaistos soon followed. More importantly, some vocabulary words also appeared: *korwos* and *korwā*, ‘boy’ and ‘girl’ (compare κούρος and κούρη); *tossoi* and *tossai* ‘so many’ (compare τόσσοι, τόσαι); *koriadnon* ‘coriander’

Kober’s contribution

It was not until the American scholar Alice Kober took up the challenge that serious progress was made. In 1945 she showed that the language of Linear B was an inflecting one, like Latin or Greek, in which words change their endings according to their grammatical function. She noticed five types of word each of which appeared in three different forms, which she thought were grammatical cases:

	Type A	Type B	Type C	Type D	Type E
Case 1					
Case 2					
Case 3					

Kober imagined how you might spell a Latin paradigm in a syllabic script like Linear B:

Case	Alphabetic spelling	Syllabic spelling	Alphabetic spelling	Syllabic spelling
Nominative	<i>dominus</i>	<i>do-mi-nu</i>	<i>servus</i>	<i>se-vu</i>
Accusative	<i>dominum</i>	<i>do-mi-nu</i>	<i>servum</i>	<i>se-vu</i>
Genitive	<i>domini</i>	<i>do-mi-ni</i>	<i>servi</i>	<i>se-vi</i>
Dative, Ablative	<i>domino</i>	<i>do-mi-no</i>	<i>servo</i>	<i>se-vo</i>

She realized that the final consonant of the stem (in the Latin examples, -*n*- and -*v*-) would form part of the same sign as the vowel of the ending; and that meant that in each of her Types A–E the consonant of the sign spelling the ending would be the same, while in each of her Cases 1–3 the vowel would be the same. She was, therefore, able to draw up what she called ‘the beginning of a tentative phonetic pattern’, a table in which signs in each row shared the same consonant, and signs in each column shared the same vowel:

(χοράωνον); and the indisputably Greek phrase *araruiai hāniāphi* ‘fitted with reins’ (which would be ἀραρυῖαι ἡνιήφι in later Greek).

Speaking on the BBC’s Third Programme on 1 July 1952 Ventris announced his breakthrough to the public: ‘For a long time I too thought that Etruscan might afford the clue we were looking for. But during the last few weeks I have suddenly come to the conclusion that the [Linear B] tablets must, after all, be written in Greek. A difficult and archaic Greek, seeing that it is five hundred years

older than Homer, and written in a rather abbreviated form, but Greek nevertheless.’ It was a broadcast which would lead to a collaboration with Cambridge philologist John Chadwick and the publication of a preliminary article ‘Evidence for Greek dialect in the Mycenaean archives’ as well as the seminal *Documents in Mycenaean Greek* (1956), whose second edition appeared in 1972 and whose third edition is in preparation.

In a letter to Chadwick dated 13 July 1952 Ventris worries that people will think he had ‘already pre-cooked the material in

such a way that the evidence wasn’t conclusive’. He need not have been concerned. In 1953 the archaeologist Carl Blegen used Ventris’s decipherment to read a tablet which had been excavated in the 1940s but locked away in the vault of the Bank of Athens for the duration of the Second World War. It had not been available to Ventris and Chadwick until now. The tablet recorded various types of vessels represented by ideograms. Some were described as *qe-to-ro-we*, a compound of τέτταρα ‘four’ and οὖς ‘ear’, so ‘having four ears’; others as *ti-ri-jo-we* ‘having three ears’ (compare later Greek τρία, ‘three’); and one as *a-no-we* ‘without ears’ (compare the later Greek negative prefix ἀν-). Curious and unlikely descriptions, perhaps; but the accompanying ideograms depicted jars with four, three, and no handles respectively. ‘All this seems too good to be true,’ wrote Blegen. ‘Is coincidence excluded?’ Of course, coincidence *was* excluded. This was the conclusive proof that Ventris, building on the work foundations laid by Alice Kober, had accomplished what many thought impossible: the decipherment of an unknown script used to write an unknown message in an unknown language.

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If you would like to read up for yourself on Linear B and its decipherment, try:

Cowley, A. E. (1927) ‘A note on Minoan writing’, in S. Casson (ed.), *Essays in Aegean archaeology presented to Sir Arthur Evans in honour of his 75th birthday*. Oxford: 5–7.

Kober, A. E. (1945) ‘Evidence of inflection in the “Chariot” Tablets from Knossos’, *American Journal of Archaeology* 49: 143–51.

Ventris, M. G. F. & Chadwick, J. (1953) ‘Evidence for Greek dialect in the Mycenaean archives’, *Journal of Hellenic Studies* 73: 84–103.

Ventris, M. G. F. & Chadwick, J. (1956) *Documents in Mycenaean Greek: Three Hundred Selected Tablets from Knossos, Pylos, and Mycenae* (1st ed.). Cambridge.

Ventris, M. G. F. & Chadwick, J. (1972) *Documents in Mycenaean Greek* (2nd ed.). Cambridge.